



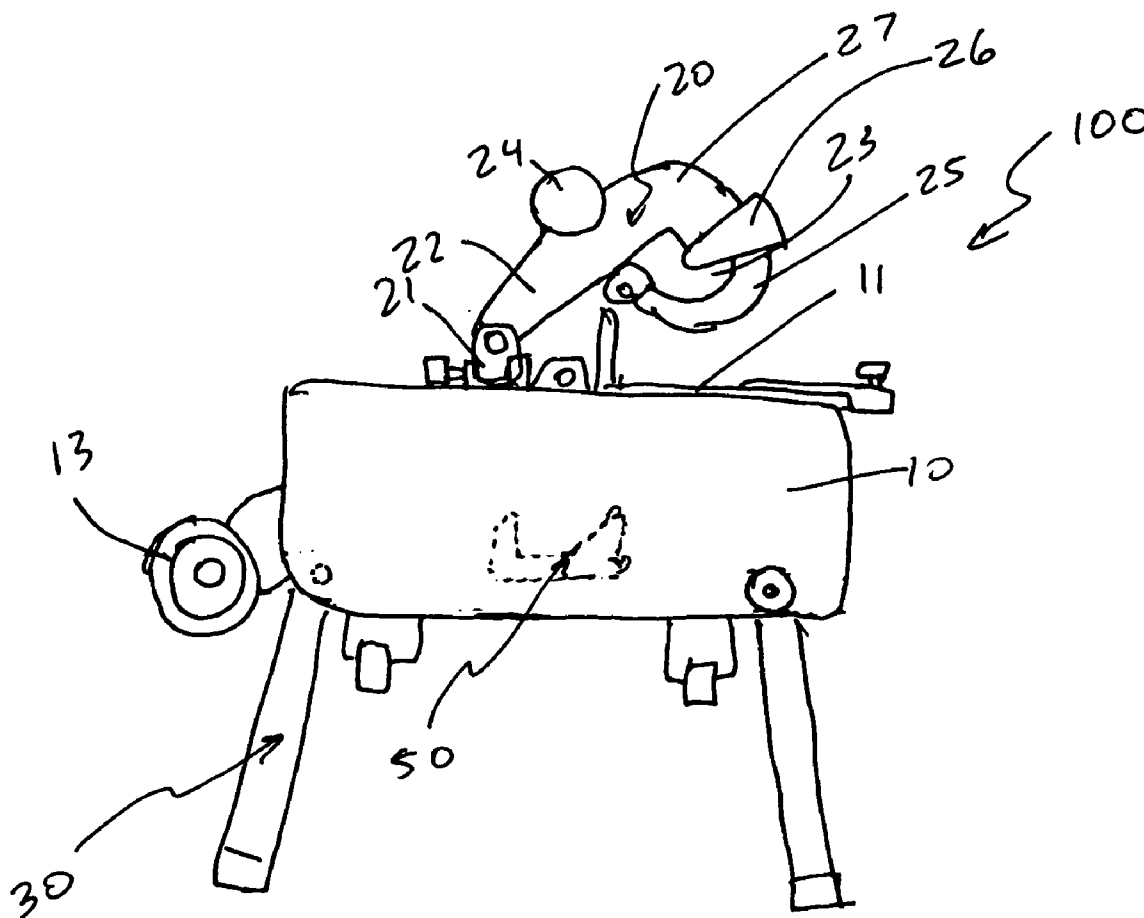
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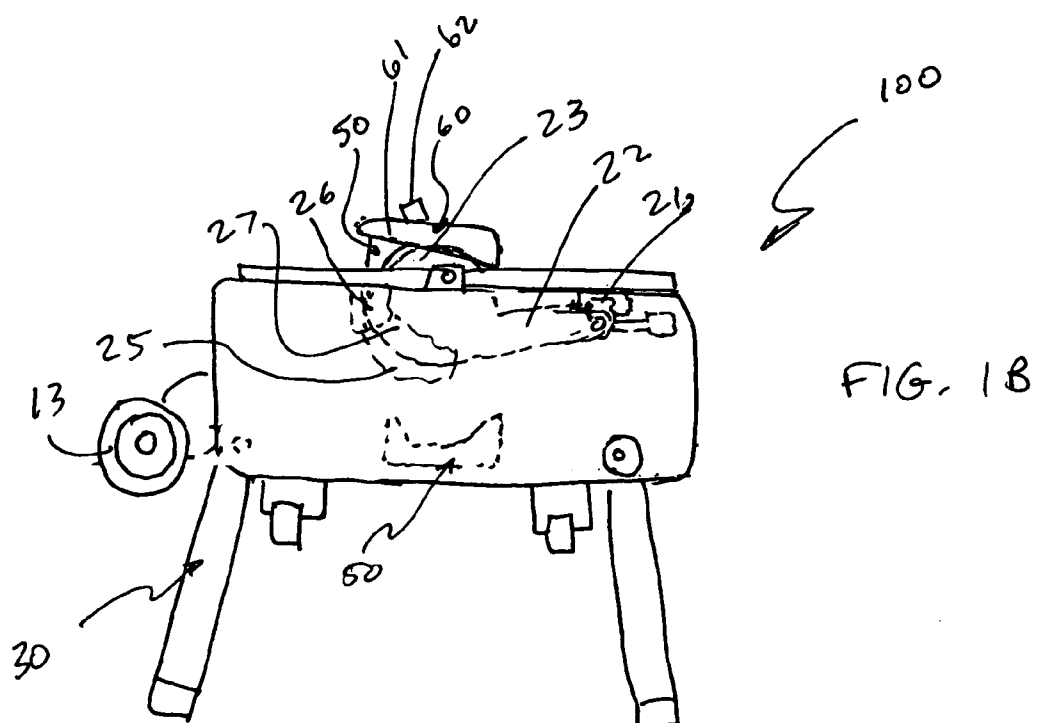
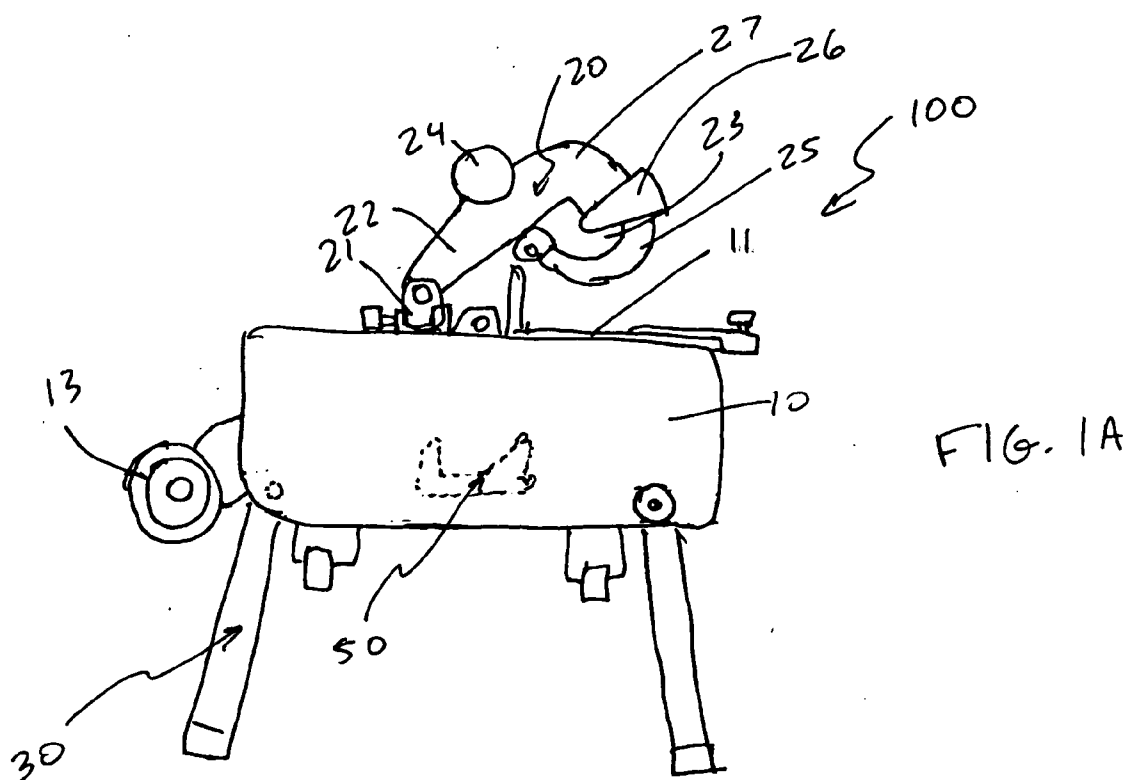
(19) **United States**(12) **Patent Application Publication****Gehret et al.**(10) **Pub. No.: US 2006/0011034 A1**(43) **Pub. Date: Jan. 19, 2006**(54) **RIVING KNIFE ASSEMBLY FOR TABLE
SAWS****Related U.S. Application Data**

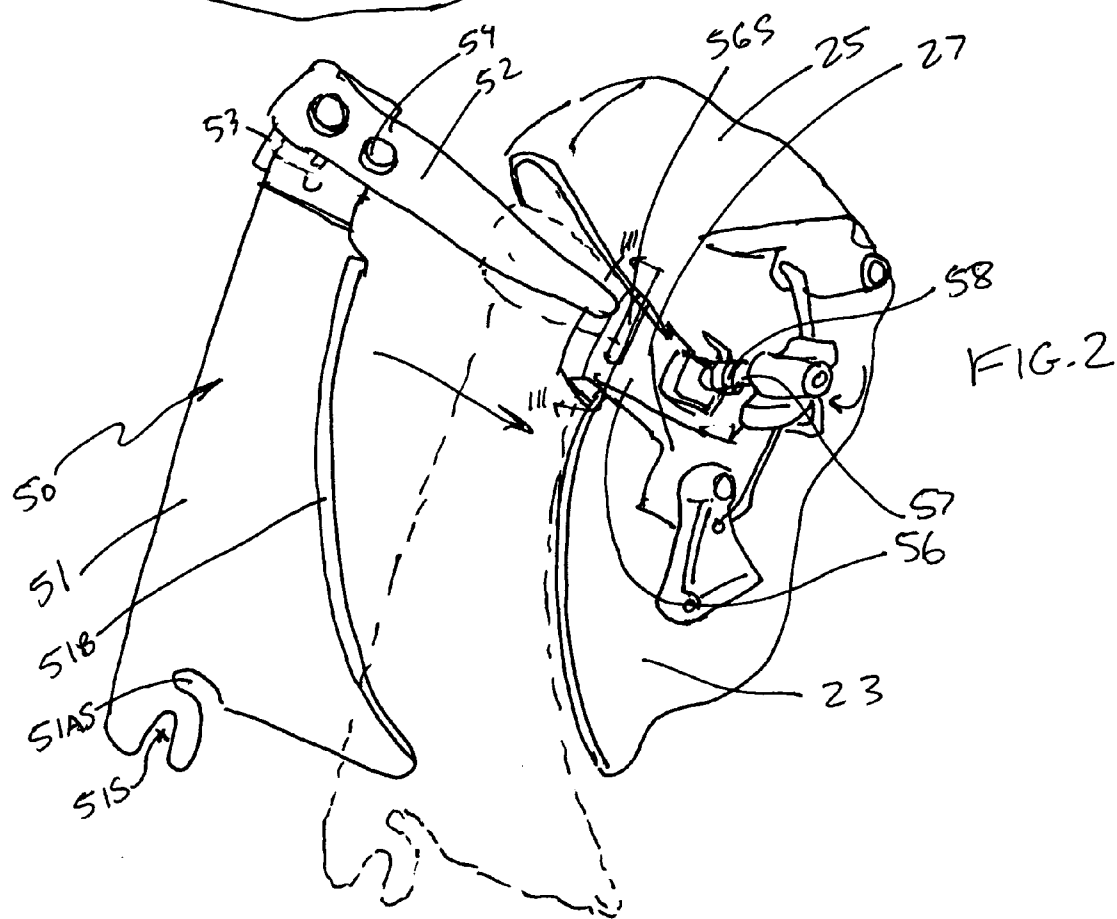
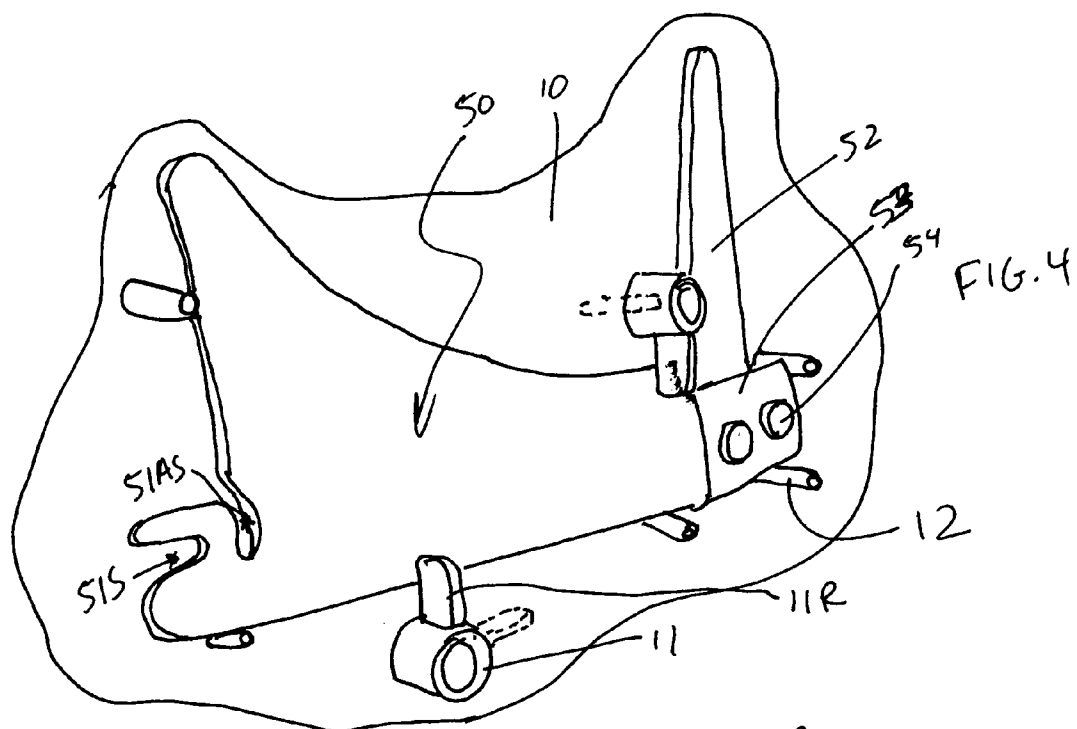
(60) Provisional application No. 60/587,622, filed on Jul. 13, 2004.

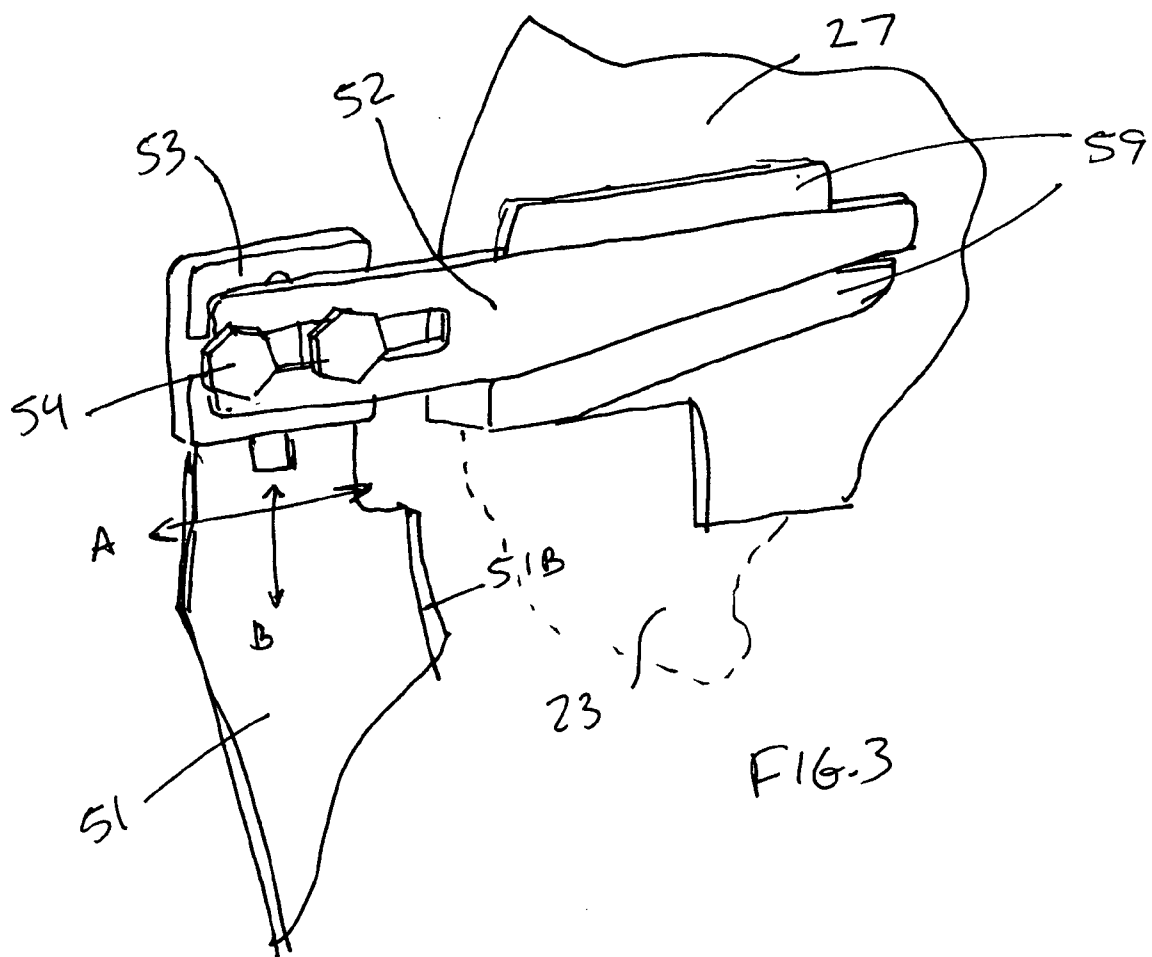
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(US)**Publication Classification**(51) **Int. Cl.**
B25H 1/00 (2006.01)
(52) **U.S. Cl.** **83/477.2; 83/522.17; 144/286.5**Correspondence Address:
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TOWSON, MD 21286 (US)(57) **ABSTRACT**

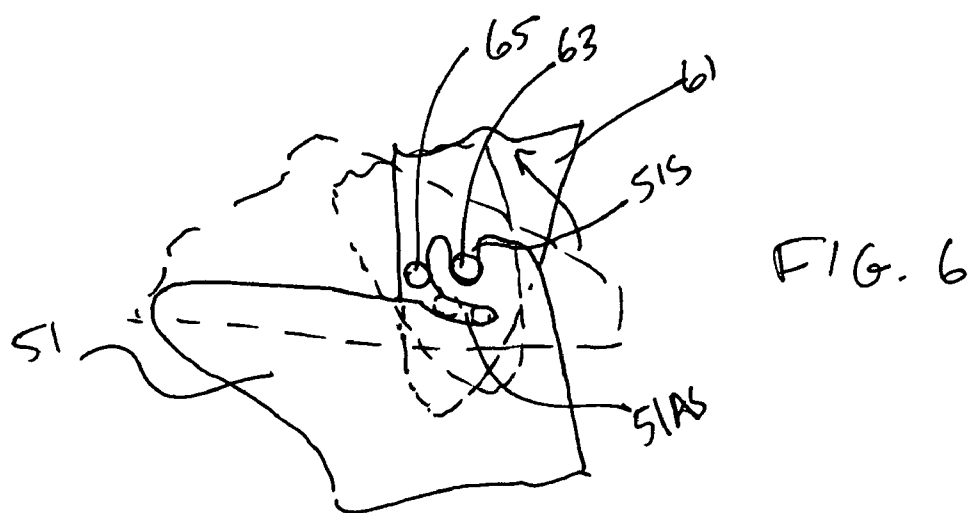
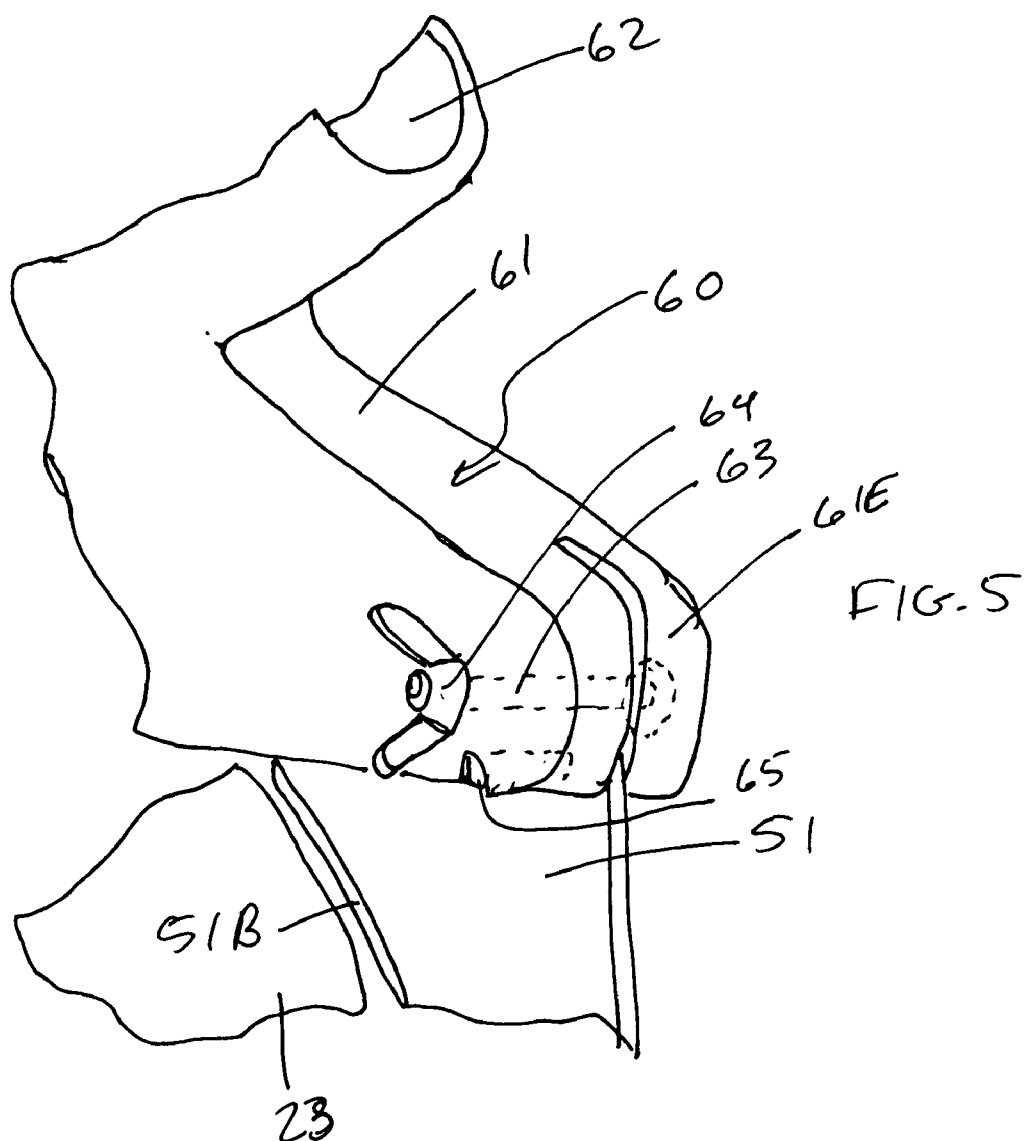
A power tool having a base assembly, a table supported by the base assembly, a saw assembly supported by the table, and a riving knife assembly attached to the saw assembly. The riving knife has a body with an edge placed adjacent to a blade, and a bracket connected to the body. The bracket is inserted into a support assembly disposed on the saw assembly.

(21) Appl. No.: **11/178,900**(22) Filed: **Jul. 11, 2005**









RIVING KNIFE ASSEMBLY FOR TABLE SAWS

REFERENCE TO CROSS-RELATED APPLICATION

[0001] The present application derives priority under 35 USC 119(e) from U.S. patent application Ser. No. 60/587, 622, filed Jul. 13, 2004.

FIELD OF THE INVENTION

[0002] This invention relates generally to a riving knife assembly for table saws and more specifically to a riving knife assembly for a combination table/miter saw.

BACKGROUND OF THE INVENTION

[0003] It is well known in the table saw field to provide a riving knife assembly behind the table saw blade. Typically the riving knife assembly is difficult to remove from the table saw. Accordingly, it is an object of the invention to provide an enhanced riving knife assembly.

SUMMARY OF THE INVENTION

[0004] In accordance with the present invention, an improved support assembly is employed. The power tool has a base assembly, a table supported by the base assembly, a saw assembly supported by the table, and a riving knife assembly attached to the saw assembly, the riving knife comprising a body having an edge placed adjacent to a blade, and a bracket connected to the body, wherein the bracket is inserted into a support assembly disposed on the saw assembly.

[0005] Additional features and benefits of the present invention are described, and will be apparent from, the accompanying drawings and the detailed description below.

DESCRIPTION OF THE DRAWINGS

[0006] The accompanying drawings illustrate preferred embodiments of the invention according to the practical application of the principles thereof, and in which:

[0007] FIG. 1 illustrates a combination table/miter saw according to the invention, whereas FIGS. 1A-1B are side views of the combination table/miter saw in the miter saw and table saw modes, respectively;

[0008] FIG. 2 is a perspective view of a riving knife assembly according to the invention;

[0009] FIG. 3 is a partial perspective view along line III-III of FIG. 2;

[0010] FIG. 4 is a perspective view of the riving knife assembly stored in the combination table/miter saw;

[0011] FIG. 5 is a partial perspective view of a blade guard assembly installed onto the riving knife assembly; and

[0012] FIG. 6 is a partial cross-sectional view of the blade guard and riving knife assemblies along a center plane of the body of the riving knife assembly.

DETAILED DESCRIPTION

[0013] The invention is now described with reference to the accompanying figures, wherein like numerals designate like parts. Referring to FIG. 1, a combination table/miter

saw 100 may include a base assembly 10, a table 11 supported by base assembly 10, and a saw assembly 20 supported by the table 11. Saw assembly 20 may include a trunnion 21 disposed on the table 11, a pivotable arm 22 pivotably attached to trunnion 21, a motor 24 supported by the arm 22 and driving a blade 23. Arm 22 also supports upper blade guard 27, which covers an upper part of blade 23. Lower blade guard 25 is pivotally attached to upper blade guard 27. An auxiliary blade guard 26 may be pivotably connected to lower blade guard 25.

[0014] Preferably, table 11 is pivotally attached to base assembly 10 via joint 15 so that, when the table 11 is in the orientation of FIG. 1A, the saw assembly 20 can act as a miter saw, i.e., saw assembly 20 can be pivoted downwardly towards table 11 to cut a workpiece placed on table 11.

[0015] On the other hand, when table 11 is rotated via joint 15 to the orientation of FIG. 1B, the saw 100 acts as a table saw, i.e., saw assembly 20 will be supported by and disposed underneath the table 11. In such orientation, blade 23 extends through the table 11, so that a user can dispose a workpiece on table 11 and push it towards blade 23 for cutting.

[0016] Persons skilled in the art will recognize that the invention described below can be applicable to non-combined table saws.

[0017] Preferably, base assembly 10 has at least one wheel 13 thereon.

[0018] Base assembly 10 may also support four leg assemblies 30. Preferably leg assemblies 30 are pivotally attached to base assembly 10.

[0019] Because the saw 100 can be used as either a table saw or a miter saw, it is preferable to provide a riving knife assembly 50 which can be easily installed when saw 100 is to be used as a table saw and easily removed when saw 100 is to be used as a miter saw.

[0020] Referring to FIGS. 2-5, riving knife assembly 50 comprises a main body 51, with a curved blade edge 51B which will be placed adjacent to blade 23.

[0021] A bracket 52 is connected to main body 51. Bracket 52 can be inserted into a slot of support assembly 56. A thumbscrew 57 is threadingly engaged to support assembly 56. With such construction, a user would lift lower blade guard 25, allowing the user to insert bracket 52 into the slot 56S. The user can then lock the bracket 52 (and thus riving knife assembly 50) in place by rotating thumbscrew 57, which pushes bracket 52 into locking contact with support assembly 56 and/or upper blade guard 27.

[0022] A spring 58 may be disposed between the knob of thumbscrew 57 and support assembly 56. Spring 58 preferably prevents thumbscrew 57 from unscrewing due to vibration, such as when riving knife is not in place.

[0023] Preferably support assembly 56 has upper and lower walls 59, which form a tapered joint with bracket 52. The mating surfaces of bracket 52 and walls 59 may also be beveled, creating a dovetail junction as well. Such tapered junction will automatically locate the riving knife assembly 50 along the vertical and horizontal axes.

[0024] The area between walls 59 (of support assembly 56 and/or upper blade guard 27) is preferably machined. When

thumbscrew **57** is tightened, the bracket **52** is pushed into such machined area along a third axis. Such arrangement preferably ensures that the riving knife assembly **50** is disposed in the same position every time it is installed unto saw **100**, thus eliminating the need for readjustment.

[0025] Persons skilled in the art will recognize that it is desirable to place blade edge **51B** relatively near blade **23**. Accordingly, it is preferable to make blade edge **51B** adjustable relative to bracket **52** so that, when bracket **52** is inserted into support assembly **56**, blade edge **51B** is in the desired position. Persons skilled in the art will recognize that body **51** can be connected to bracket **52** via screws **54**, and that adjustability can be provided by providing slots on body **51** and/or bracket **52** so that screws **54** can move along such slots.

[0026] Alternatively, a plate **53** can be sandwiched between body **51** and bracket **52**. Adjustability can be provided by providing slots on body **51**, bracket **52** and/or plate **53**, so that screws **54** can move along such slots. Preferably, body **51** can move relative to bracket **52** along axes A and/or B. Preferably, slots are provided in body **51** and bracket **52**. Screws **54** go into plate **53** through said slots. Said slots are preferably perpendicular to each other and thus provide independent adjustment in their respective axes.

[0027] It is preferable to provide a place to store riving knife assembly **50**. Referring to **FIGS. 1 and 4**, base assembly **10** may have bosses **12** to receive riving knife assembly **50** thereon. Rotatable retainers **11** with protrusions **11R** may be pivotally attached to base assembly **10**. Preferably, a retainer **11** can be moved between a first position where protrusion **11R** overlaps riving knife assembly **50** (as shown in solid lines in **FIG. 4**), thus holding it in place, and a second position where protrusion **11R** does not overlap riving knife assembly **50** (as shown in broken lines in **FIG. 4**), thus allowing a user to remove riving knife assembly **50** from base assembly **10**.

[0028] Persons skilled in the art will recognize that that other means of retaining the riving knife assembly **50** in place, such as spring clips or magnets, could be substituted for retainer **11** and are considered to be equivalents of the present invention.

[0029] Persons skilled in the art will recognize that it may be advantageous to provide a blade guard assembly **60** that can be installed unto riving knife assembly **50**. Referring to **FIGS. 1 and 5-6**, blade guard assembly **60** comprises a body **61**, which is preferably substantially hollow, with a dust exhaust **62** connectable to a vacuum hose for extracting dust and chips generated during the cutting operation.

[0030] Body **61** may have two split portions **61E** at one end thereof for receiving body **51** of riving knife assembly **50**. A bolt **63** extends through both split portions **61E**. A thumbscrew **64** may be provided at the end of the bolt **63** for sandwiching the portion of body **51** inserted between split portions **61E**. Body **61** may also have a boss **65** disposed underneath bolt **63**.

[0031] Preferably body **51** of riving knife assembly **50** has a substantially perpendicular slot **51S** and an arcuate slot **51AS** disposed adjacent to slot **51S**. Persons skilled in the art will recognize that bolt **63** and boss **65** are preferably received by slots **51S**, **51AS**, respectively. Accordingly, it is desirable to ensure that the distance between slots **51S** and **51AS** are substantially similar to the distance between bolt **63** and boss **65**.

[0032] Preferably, boss **65** has a screw that goes through the boss **65** and threadingly engages a hole in the body **61** on the opposite side. This increases the strength of boss **65**.

[0033] With such arrangement, the user would insert bolt **63** into slot **51S** (thus disposing body **61** unto body **51**). Boss **65** would be automatically disposed in or near arcuate slot **51AS**. The user would then rotate body **61** about bolt **63** so that boss **65** moves along arcuate slot **51AS**, until a desired position is reached or boss **65** contacts the end of arcuate slot **51AS**. The user can then lock blade guard assembly **60** by rotating thumbscrew **64**.

[0034] Persons skilled in the art may recognize other additions or alternatives to the means disclosed herein. However, all these additions and/or alterations are considered to be equivalents of the present invention.

We claim:

1. A power tool comprising:

a base assembly;

a table supported by the base assembly;

a saw assembly supported by the table, the saw assembly comprising a motor, a blade driven by the motor, and an upper blade guard covering an upper part of the blade; and

a riving knife assembly attached to the saw assembly, the riving knife assembly comprising a body having an edge placed adjacent to the blade, and a bracket connected to the body;

wherein the bracket is inserted into a support assembly disposed on the upper blade guard.

2. The power tool of claim 1, further comprising a guard attached to the body of the riving knife assembly.

3. The power tool of claim 2, wherein the guard is pivotally attached to the body.

4. The power tool of claim 1, further comprising a screw extending through the support assembly.

5. The power tool of claim 4, further comprising a spring disposed between the screw and the support assembly.

6. The power tool of claim 1, wherein the support assembly has walls forming a taper.

7. The power tool of claim 6, wherein the taper engages the bracket.

8. The power tool of claim 1, wherein the saw assembly is pivotally attached to the table via a trunnion.

9. The power tool of claim 1, wherein position of the body is adjustable relative to the bracket.

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